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What is claimed is:

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1. An antibody capable of specifically inhibiting the fusion of an HIV-1 envelope glycoprotein* cell with an appropriate CD4* cell without cross reacting with the HIV-1 envelope glycoprotein or CD4 and capable of inhibiting infection by one or more strains of HIV-1.
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2. A monoclonal antibody of claim 1.
3. A hybridoma cell line producing the monoclonal antibody of claim 2.
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4. A chimeric monoclonal antibody of claim 2.
5. A humanized monoclonal antibody of claim 4.
6. A human monoclonal antibody of claim 2.
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7. A single chain antibody or an antigen binding antibody fragment of claim 2.
8. A monoclonal antibody capable of competitively inhibiting the binding of the monoclonal antibody of claim 2 to its target molecule.
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9. The monoclonal antibody of claim 2, 4, 5, 6, 7, or 8 labelled with a detectable marker.
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10. A monoclonal antibody of claim 9 wherein the detectable marker is a radioactive isotope, enzyme, dye or biotin.
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11. A pharmaceutical composition comprising the complete or a portion of the monoclonal antibody of claim 2,

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4, 5, 6, 7 or 8 and a pharmaceutically acceptable carrier.

- 5 12. A method of inhibiting HIV-1 infection in a subject comprising administering an effective amount of the pharmaceutical composition of claim 11 to the subject.
- 10 13. An isolated nucleic acid molecule encoding the complete or a portion of the light chain protein of the monoclonal antibody of claim 2, 4, 5, 6 or 8.
- 15 14. An isolated nucleic acid molecule encoding the complete or a portion of the heavy chain protein of the monoclonal antibody of claim 2, 4, 5, 6 or 8.
- 20 15. An isolated nucleic acid molecule encoding the single chain antibody of claim 7.
- 25 16. A vector comprising the nucleic acid molecule of claim 13, 14 or 15 operably linked to a promoter of RNA transcription.
- 30 17. A vector comprising the nucleic acid molecules of claims 13 and 14 each operably linked to a promoter of RNA transcription.
- 35 18. A host vector system comprising one or more vectors of claim 16 or 17 in a suitable host cell.
19. A host vector system of claim 18, wherein the suitable host cell is selected from a group consisting of a bacterial cell, an insect cell, a yeast cell or a mammalian cell.

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20. The molecule specifically recognized by the monoclonal antibody of claim 1.
21. A glycolipid molecule of claim 20.
22. A polypeptide molecule of claim 20.
23. An isolated nucleic acid molecule encoding the complete or a portion of the polypeptide of claim 22.
24. A multichain polypeptide molecule comprising the polypeptide of claim 22.
25. A soluble protein comprising a portion of the polypeptide of claim 22 or 24.
26. A pharmaceutical composition comprising an effective amount of the soluble protein of claim 25 to inhibit HIV-1 infection and a pharmaceutically acceptable carrier.
27. A method of inhibiting HIV-1 infection in a subject comprising administering an effective amount of the pharmaceutical composition of claim 26 to the subject.
28. An isolated nucleic acid molecule encoding the complete or a portion of a polypeptide of the multichain polypeptide molecule of claim 24.
29. A vector comprising the nucleic acid molecule of claim 23 or 28 operably linked to a promoter of RNA transcription.

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30. A host vector system comprising the vector of claim 29 in a suitable host cell.
31. A host vector system of claim 30, wherein the suitable host cell is selected from a group consisting of a bacterial cell, an insect cell, a yeast cell or a mammalian cell.
- 10 32. A method for identifying inhibitors of HIV-1 infection comprising steps of:
- 15 (a) contacting an effective amount of a compound with a system which contains HIV-1 gp120, HIV-1 gp41 or a fragment thereof with the molecule of claim 20 under conditions permitting formation of a complex between HIV-1 gp120, HIV-1 gp41 or a fragment thereof and the molecule, so as to inhibit such formation; and
- 20 (b) determining the amount of complex formed; and
- (c) comparing the amount determined in step (b) with the control which is without the addition of the compound, a decrease in the complex formation indicating that the compound is capable of inhibiting HIV-1 infection.
- 25 33. A method of claim 32, wherein the compound is not previously known.
34. The compound identified by claim 33.
- 30 35. A pharmaceutical composition comprising the compound identified by the method of claim 32 and a pharmaceutically acceptable carrier.
- 35 36. A method of inhibiting HIV-1 infection in a subject comprising administering an effective amount of the

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pharmaceutical composition of claim 35 to the subject.

37. A kit for identifying inhibitors of HIV-1 infection which comprises, in separate compartments:

- (a) purified HIV-1 gp120, HIV-1 gp41 or a fragment thereof; and
- (b) the molecule of claim 20.

38. A transgenic nonhuman animal which comprises an isolated DNA molecule encoding the molecule of claim 22 or 24.

39. The transgenic nonhuman animal of claim 38 further comprising an isolated DNA molecule encoding the full-length or portion of the CD4 molecule sufficient for binding the HIV-1 envelope glycoprotein.

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